

failed this autumn on the north and east coast, on account of the drift-ice, but they have been good on the south coast.

THE additions to the Zoological Society's Gardens during the past week include a Mongoz Lemur (*Lemur mongoz* ♂), an Olive-gray Lemur (*Haplorhina olivacea*) from Madagascar, presented by Capt. J. Bonnerville; an Anubis Baboon (*Cynocephalus anubis*); an Angolan Vulture (*Cypophierax angolensis*) from West Africa, presented by Capt. Augustus Kent; a Peregrine Falcon (*Falco peregrinus*), European, presented by Mr. J. G. Keulemans; a — Scops Owl (*S. ops* —) from Balteian, Himalayas, presented by Mr. John H. Leech, F.Z.S.; two Rough-scaled Zonures (*Zonurus corilylus*) from Robben Island, South Africa, presented by Mr. W. K. Sibley.

OUR ASTRONOMICAL COLUMN.

THE ASTRONOMICAL SOCIETY OF FRANCE.—The science of astronomy has become so increasingly popular in France within the last few years, and Frenchmen have done so much to aid its progress that there is ground for wonder that hitherto there has been no Society in France explicitly devoted to its interests. Such a Society, on lines very similar to those of our own Royal Astronomical Society, has at length been founded, and its first meeting was held on October 12, M. Camille Flammarion, the President, being in the chair. MM. Paul and Prosper Henry, General Parmentier, and M. E. L. Trouvelot are the Vice-Presidents; and MM. Gérigny and Gunziger the Secretaries; whilst Dr. Lescarbault, M. G. Secretan, and M. Ch. Trépied are amongst the members of Council. At the first meeting, M. Trouvelot read a paper on a remarkable double shadow of the first satellite of Jupiter, observed by him in 1877 when at Cambridge, U.S.; and M. Ch. Mousette exhibited a fine photograph of a sunspot, and some large-scale photographs of portions of the solar spectrum.

THE LICK OBSERVATORY.—The *Sidereal Messenger* for the current month states that Mr. E. E. Barnard, of Nashville, Tenn., and Mr. J. M. Schaeberle, of the Ann Arbor Observatory, both well known for their cometary discoveries, have been appointed as astronomers at this Observatory.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 NOVEMBER 20-26.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on November 20

Sun rises, 7h. 29m.; souths, 11h. 45m. 44' 8s.; sets, 16h. 3n.; right asc. on meridian, 15h. 42' 4n.; decl. 19° 42' S. Sidereal Time at Sunset, 20h. 0m.

Moon (at First Quarter November 22, 11h.) rises, 12h. 15m.; souths, 16h. 43m.; sets, 21h. 18m.; right asc. on meridian, 20h. 41' 0m.; decl. 17° 52' S.

Planet.	Rises.		Souths.		Sets.		Right asc. and declination on meridian.			
	h.	m.	h.	m.	h.	m.	h.	m.	s.	decl.
Mercury..	6	48	...	11 22	...	15 56	...	15	18' 5	16 56' S
Venus ...	3	1	...	8 48	...	14 35	...	12	44' 5	3 22 S.
Mars ...	1	6	...	7 35	...	14 4	...	11	30' 9	5 1 N.
Jupiter ...	6	34	...	11 10	...	15 46	...	15	6' 7	16 36 S.
Saturn ...	20	53*	...	4 40	...	12 27	...	8	36' 1	19 0 N.
Uranus ...	3	27	...	9 2	...	14 37	...	12	58' 2	5 31 S.
Neptune..	15	8	...	23 49	...	7 30*	...	3	47' 4	18 10 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich).

Nov.	Star.	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image.	
					h. m.	h. m.
23 ...	B. A. C. 7202 ...	6 ...	16 46 ...	18 2 ...	124	279°
20 ...	B. A. C. 7209 ...	6½ ...	17 35 ...	18 32 ...	159	259
20 ...	19 Capricorni ...	6 ...	20 30 ...	21 30 ...	114	347

Nov.	h.		
21	...	1	Mercury at least distance from the Sun.
21	...	6	Neptune in opposition to the Sun.
24	...	10	Venus in conjunction with and 1° 6' north of Uranus.
26	...	23	Mercury stationary.

Variable Stars.

Star.	R.A.		Decl.			
	h.	m.	h.	m.		
U Cephei	...	0 52' 3	...	81 16' N.	Nov. 22,	1 48 m
R Arietis	...	2 9' 7	...	24 32' N.	...	25, m
λ Tauri	...	3 54' 4	...	12 10' N.	...	25, 5 40 m
U Ophiuchi	...	17 10' 8	...	1 20' N.	...	22, 5 27 m
					and at intervals of	20 8
β Lyrae	...	18 45' 9	...	33 14' N.	Nov. 22,	6 0 m
η Aquilæ	...	19 46' 7	...	0 43' N.	...	24, 22 0 M
S Sagittæ	...	19 50' 9	...	16 20' N.	...	22, 19 0 m
					...	25, 19 0 M
δ Cephei	...	22 25' 0	...	57 50' N.	...	20, 21 0 M

M signifies maximum; m minimum.

Meteor-Showers.

	R.A.	Decl.	
The Andromedes	...	24	44' N. ... Very slow; with trains.
Near μ Ursæ Majoris.	155	...	40 N. ... Swift; streaks.

GEOGRAPHICAL NOTES.

THE Owen Stanley Range of New Guinea, which has been so long known at a distance, has at last been ascended. Mr. E. H. Martin, of Queensland, in August last, reached the summit of the range, which he found to be 13,205 feet high. He reports the north side of the range to be a paradise with great tree-ferns, palms, and other magnificent tropical vegetation. Mr. W. R. Cuthbertson, the leader of the Australian Geographical Society's Expedition, started for Port Moresby on July 20 last, with Mr. G. Hunter as interpreter. Mr. Cuthbertson has not yet succeeded in ascending to the highest point of the Owen Stanley Range, as he intended, but ascended Mount O'Bree, 10,240 feet.

IN No. xi. of *Petermann's Mittheilungen*, Dr. Paulitschke describes Captain Stuart King's journey into the country of the Ejsa and Gadaburssi Somali, some 70 miles to the south of Zeyla, in 1886. The paper is accompanied by a map. Dr. von Jhering and P. Langhans conclude their long and elaborate memoir on the southern colonial region of Rio Grande do Sul. Dr. Hans Schinz, who has been so long in the Lake Ngami region, criticizes severely Mr. Farini's narrative of his journey to the Kalahari Desert, the conclusion being very adverse to the trustworthiness of Mr. Farini's narrative. Perhaps the most important contribution to this number is a beautiful map of the Russo Afghan frontier region, based upon the work of Colonel Hoidich's Commission. It is remarkable that while Colonel Hoidich's work is carefully locked up in the India Office as "confidential," so far as English geographers are concerned, it should be accessible to the geographers of other countries.

HERR KRAUSE has returned to the German settlement of Togo, on the Gold Coast, from his journey from Salaga through Dahomey. He has collected from 600 to 800 specimens of plants and seeds, a large number of insects, and numerous specimens of prehistoric articles found between Mosi and Timbuktu.

THE principal paper in the third part of this year's *Bulletin* of the Paris Geographical Society is an account of a journey made in 1881 by Count de Chavagnac, from Fez to Morocco, north-east to Meknessa, and eastwards across the numerous wadis that run south into Wed Mellouja, and as far as Ajda. There is also a paper containing a good deal of useful information, and accompanied by an excellent map, on the ports of Tonquin, by M. J. Renaud. M. Datreuil de Rhins concludes his useful summary of our knowledge of Eastern Tibet.

THE session of the Royal Geographical Society began on Monday, with a paper on Siam, by Mr. J. McCarthy, Superintendent of Surveys in Siam. Mr. McCarthy has been at work for seven years on the survey of Siam, and some of the results he described in his paper, and embodied in the map by which

it was illustrated. After indicating the position of Siam in the Malay Peninsula, the author went on to say that on the west is a chain of mountains which runs in an unbroken range to Singapore, the southernmost limit of the Malay Peninsula; some of its peaks between Burmah and Siam rise to a height of 7000 feet, while one peak in the Malay Peninsula reaches 8000 feet. On the east there is another range of mountains which forms the grand watershed of all the rivers that flow into the Gulf of Tonquin and Chinese Sea on the one hand, and the Meinam Kong on the other. There are peaks in this range that reach even 9000 feet above mean sea-level. Besides these ranges there is another which breaks away from the western range from a point north-east of Chingmai, and forms the watershed between the Meinam and Meinam Kong valleys. In this range, at the source of the eastern branch of the Meinam, are famous salt-wells. The salt is procured at depths varying from 35-45 feet—in these land-locked countries as valuable as money. The greater part of the valley of the Meinam Kong and the Meinam is flat, diversified by isolated hills, and broken and jagged ridges of limestone mountains. The most important river, though not the largest, is the Meinam Chau Phraya. It is the Nile of Siam, a good rice harvest very much depending on whether the river overflows its banks or not. The eastern branch of the river is specially known for the numerous crocodiles which yearly carry off some victims. Two other rivers converge towards the Meinam, the Mei Klong and Bang Pla-Kong. All these rivers are connected by canals, rendering communication easier in a country where roads are conspicuous by their absence. The Meinam Kong is the largest river, and flows through the northern and eastern parts of the kingdom, receiving the waters of many large affluents; but the channel of this mighty river is so blocked with large rocks and cataracts, that its navigation is very difficult, and in some parts impossible even for native craft. Mr. McCarthy then went on to describe some of his journeys in detail, especially the one to the north-east frontier, which led him through scenes of surpassing beauty, and during which he opened up much new ground.

THE Arctic land seen by Sannikoff eighty years ago has been seen again by the Expedition of MM. Bunge and Toll from the northern extremity of the Kotelniki Island. The Great and Small Liakhov Islands, the Thadus Island, and New Siberia have also been visited by the Expedition, which has returned with rich zoological, botanical, and geological collections. Throughout the summer of 1885 the ice on the Siberian coast did not move from the shores, and the hunters said that the sea had not been clear from ice since the *Vega* Expedition.

METEOROLOGICAL NOTES.

WE have lately been subjected to a series of storms which fortunately in the British Islands is not of very common occurrence. The storm of October 30, which was noticed in NATURE a few days after its occurrence, had scarcely left our shores before a fresh disturbance was approaching us from off the Atlantic, and by the evening of Monday, the 31st, another gale was blowing in Ireland, and during the night this storm extended to all parts of the British Islands. The central area of low barometer readings, which primarily occasioned the renewal of disturbed weather, kept to the westward of our coasts, but the Daily Weather Chart of November 1 shows that two secondary disturbances had been formed, one having its centre in the St. George's Channel, and the other over the Bay of Biscay. The very severe gale experienced in the south-west and west of England on November 1 was due to the former of these, the storm area passing during the day slowly up the Irish Sea. The fall of the barometer for this gale amounted to 1.02 in. at Pembroke in fourteen hours, from 6 p.m. 31st to 8 a.m. 1st; and at Lyme Regis the wind attained the velocity of 83 miles an hour between 7 and 8 o'clock in the morning. Another disturbance skirted to the westward of Ireland on the evening of the 2nd, and during the following day, causing southerly gales in many parts of the country, the barometer standing below 29 inches over the whole of the United Kingdom. On the evening of the 3rd another subsidiary was formed in the Irish Sea, and subsequently passed over the north of England, causing gales and disturbed weather in parts adjacent to its path. Before the expiration of the week a fresh disturbance was shown in the west, and on Saturday, the 5th, the barometer was again falling: the force of the wind, however, was not severe, although

it blew a fresh gale in places. It will be seen from this notice that no fewer than five distinct storms were experienced in seven days, and in each case the wind was accompanied by heavy rain.

THE Meteorological Council have published Part I. of the "Hourly Readings" for 1885 (January to March) made at their self-recording observatories, together with the daily means, daily maxima and minima, and the daily range for pressure and temperature. Hourly values have now been issued in either lithographed or printed form since 1874, and afford valuable data for discussion in various ways, although the hourly means are not calculated. Corrections are given for reducing the barometric observations to mean sea-level. In connection with these observations it may be mentioned that the Meteorological Institute of the Netherlands lately published an interesting paper by M. Schokker on atmospheric disturbances studied by means of the hourly readings issued by the Meteorological Office and elsewhere; he traced on charts the positions of depressions for various hours, and showed that many phenomena which are clearly traceable from hourly observations are entirely lost sight of on charts giving only one or two hours a day. He also quoted instances where timely warning of storms could have been given, which were not possible from the usual observations received by telegraph.

THE Hydrographic Office of the United States calls special attention to a new form for reports of storms, fog, ice, and derelicts, issued for the use of trans-Atlantic steamers. This form replaces those hitherto issued by that Office and the Signal Service, and the information thus collected is immediately utilized in preparing the telegrams sent daily to France by the United States Signal Service for the benefit of westward-bound vessels. Captains of trans-Atlantic steamships are requested, in the interest of navigation, to send in prompt and complete reports. No doubt British ship owners will instruct their officers to co-operate in this enterprising experiment, as this country has at least equal interest with others in the safety of Atlantic navigation.

A DISCUSSION on the distribution of cloud over the eastern part of the North Atlantic, by Dr. W. Köppen, will be found in the *Annalen der Hydrographie und Maritimen Meteorologie* for October. The author points out that the cloud-conditions over the Atlantic are now fairly well known from the publications of the Meteorological Office (Captain Toynbee's great work for nine 10° squares), and the six 10° squares discussed by the Deutsche Seewarte. Dr. Köppen gives a table showing the mean monthly cloud from 20°-50° N. and from 10°-40° W., and the number of observations used, for every 5°, showing that, with regard to longitude, in the months January to April the cloud decreases north of 10° N. as we approach the shores of Africa and Europe, while in the other months this does not hold good. South of the equatorial calm-belt, May has the least cloud towards the east of the district, and in the months September to February the least cloud is towards the west. The differences of the amount of cloud with regard to latitude are much more decided, and these changes are shown on a map of equal lines of mean cloud, on the same plan as was adopted by the author in his discussion of the rainfall (NATURE, vol. xxxvi. p. 617). He also compares the cloud and rainfall curves for the yearly period, and draws attention to their marked difference in the zone of 15°-27° N. lat. While the tropical summer rains cease between 15° and 20° N., the summer maximum of cloud extends as far as 25° N. In the same way the winter maximum of cloud only extends southwards to 25° N., while the rain extends to 17° N. In these latitudes the minimum of cloud falls in the autumn, and the minimum of rain in spring. Only from 15°-17° to the southwards is the amount of cloud in spring less than in autumn, while northwards of 27° N. both minima coincide in the late summer season. Between 15° and 20° N. the end of the long dry season, lasting from February to June, is very cloudy. The author also compares his cloud-results with those obtained by M. Teisserenc de Bort from independent data (NATURE, vol. xxxvi. p. 15), and on the whole expresses himself satisfied at the agreement between the two investigations.

WE have the pleasure of recording the commencement of the publication of meteorological observations in the *Boletín de Estadística* of Puebla (Mexico). Observations taken three times a day are published for several stations, and monthly means for several others. The stations are generally at great altitudes above the sea.